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ABSTRACT

A study involving 25 children, aged five to eight years, employed a clinical interview method to examine the children's recognition and knowledge of rule violations in communication. The rules, derived from H. P. Grice's "be cooperative" principle, referred mainly to the maxim "be perspicuous, unequivocal, clear, and intelligible" and to turn-taking behavior in conversation. The subjects were interviewed individually and were shown 13 film scenes, each containing a face-to-face encounter between two girls in which one participant showed inappropriate behavior illustrating a rule violation. After each scene, the subject was asked to identify the rule violation that had taken place. The results showed a clear age-dependency of scores, with younger subjects showing a greater ignorance of communication rules than older subjects. The poor performance of the younger subjects was attributed to a lack of understanding of messages that refer to the representational level (rather than to an ongoing action) and to lack of role taking ability. The findings support a hierarchical model of different levels of perspective taking ability. (FL)

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AN INTERVIEW STUDY OF CHILDREN'S UNDERSTANDING OF COMMUNICATION RULES: A PRELIMINARY INVESTIGATION

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An interview study of children's understanding of communicative rules: a preliminary investigation.

Abstract

This study comprising 26 children of age 5 to 8 employed a clinical-interview method to examine children's recognition and verbalizable knowledge of rule violations in communication. The rules were derived from Grice's be-cooperative-principle, and referred mainly to the maxim "be perspicuous, unequivocal, clear and intelligible" and to turn-taking-behaviour in conversation (one party at a time, summons-answer-routine, interrupting before the topic of speech is known). 13 film scenes (super 8 sound) were developed, each containing a face-to-face two party communication situation where one participant shows inappropriate behaviour because of rule violation. The results of the interview showed a clear age-dependency of scores, with decreasing rule-ignorant behaviour and increasing tacit knowledge and verbalizable conscious knowledge of communication rules. The poorer results of the 5 and 6 year olds were discussed in the light of two cognitive-developmental concepts: lack of understanding messages that refer to the representational level (and not to an ongoing action) and lack of role taking ability. The data support a hierarchical model of different levels of perspective taking ability.

In recent research on communicative abilities of young children four different methodological approaches can be identified:

- In the tradition of Piaget (1926) and Wygotski (1971) children have been observed in natural play situations and the occurance of egocentric and socialized speech has been investigated. A more elaborated version of this approach is the analysis of functions of interpersonal spontaneous speech of children done by Schachter et al. (1974).
- Children have been confronted with various tasks (retell a story, explain a game, encode graphic material) in a dyadic communication situation in order to assess their referential communication skills and their communicative effectiveness and accuracy (Glucksberg et al. 1975, Piaget 1926, Flavell 1966, Maratsos 1973).
- How children use language in interacting with each other and how they sustain the interaction through a sequence of exchanges has been investigated by various researchers (Garvey/Hogan 1973, Keenan 1974, Wellman/Lempers 1977, Mueller et al. 1977).

- A relatively new approach is the study of metacommunication abilities, the child's understanding of communication. Flavell (1976) has outlined a framework for the development of this ability. Robinson/Robinson (1976,1977,1978) have investigated in various experiments how children explain communication failure. They had children observe or participate in a referential communication game and asked the subjects who was to blame for a communication failure (choosing a wrong card).
  The study reported here is in the tradition of research on metacognitive development, the awareness and potentially verbalizable knowledge of cognitive processes.

Communication is conceptualized in this study as a rule-guided behaviour. The concept of rules for the explanation of social behaviour has been used for many years in different domains of social science, be it social psychology, communication theory or ethnomethodology (Goffman 1967, Cushman/Whiting 1972, Harré 1974, Nofsinger 1976, Kallmeyer/Schütze 1976, Collett 1977, Litton-Hawes 1977, Shimanoff 1980).

Shimanoff (1980, p.57) has given a useful definition of a rule which was adopted for the purpose of this study: "A rule is a followable prescription that indicates what behaviour is obligated, preferred, or prohibited in certain contexts." She points out to four characteristics of a rule: (1) followability. That implies that rules also may be broken whereas scientific laws cannot be broken; (2) prescriptiveness. This "implies that something should happen and that a deviation from this behavior is subject to evaluation" (Shimanoff, 1980, p. 41); (3) contextuality. Rules apply in all similar situations; (4) the domain of rules is human behaviour. Rules prescribe behaviour and may be used to interpret

and judge behaviour, but rules do not prescribe cognitions. Rules may be explicit or implicit.

There have been up to now many attempts to specify rules in conversation, for instance rules for the use of a demand ticket (Nofsinger 1975) or for the sequencing of conversational openings (Schegloff 1968), or a general principle (be cooperative) under which fall more specific maxims (Grice 1975) or a whole system of communicative rules, specifying rules for both speaker and listener (Geulen 1977).

The aim of this study was to investigate at what age young children are aware of rule-conforming behaviour (recognize communicative failures which are due to noncompliant rule behaviour and are able to give an example for appropriate behaviour) and have conscious knowledge of a certain communication rule (are able to give an explanation of inappropriate behaviour referring to a rule).

The rules investigated here are mainly derived from the COOPERATIVE PRINCIPLE described by Grice, a "general principle which participants will be expected (ceteris paribus) to observe, namely: Make your conversational contribution such as is required, at the stage at which it occurs, by the accepted purpose or direction of the talk exchange in which you are engaged." (Grice 1975, 45). While the maxims of Grice refer only to conversation (talk exchange), the term communication rule, used in this study, also comprises nonverbal interactive behaviour connected to the ongoing talk.

METHOD

For the purpose of this study a super-8-sound-film consisting of 13 little scenes was developed in which 2 girls are engaged in a casual conversation and one of them shows noncompliant rule behaviour (examples see below under "Results").

The situation is a face-to-face two-party conversation with participants of the same sex, age and status. Two girl actors of age 10 were chosen because of their acting talents. Since extensive pilot studies with various films and many children have shown that young children have difficulties in following a conversation which comprises only the verbal plane, some film scenes were produced where the talk is embedded in ongoing actions (the two girls sitting at a table, having supper, playing and talking together). In most of the film scenes the listener signals his nonunderstanding either by facial expression (frowning, staring) or by speech ("Uuh?", "are you crazy?") after having noticed the inappropriate behaviour. If the subjects did not spontaneously recognize the communication failure, the behaviour of the listener could be taken as a cue for the interview. The whole film shows a coherent story beginning with simple situations, becoming more complex and difficult as the film progresses. Filmstrip 9 was made simple in order to give younger children the possibility of success.

SUBJECTS

The subjects were 26 children randomly selected from a Berlin school, 6 children each of age 5 and 7, 7 children each of age 6 and 8. The number of boys and girls was equal, the social status ranged from working to middle class.

PROCEDURE

The second and third author investigated the children, one interviewing, the other assisting. Both were known to the children from previous visits to the school. The interviewing was conducted in a quiet room at the school. After briefly establishing rapport with

S.,E.explained the purpose of the study: "We are going to show you some films about two girls, Katja and Michi. Here you see a foto of each of them". (Two colour fotos were lain in front of S. on the table). "These girls sometimes behave strangely. I will show you the film and I want you to tell me if there is something funny about it." Each film strip was shown twice and the child was interviewed after each scene. The interview consisted of the following questions: "Did you find something funny?" (If the child was unable to give a correct answer, s/he was asked to retell the story. E. helped and where required gave additional information about the film in order to establish that S. had a good understanding of the situation). - "Who did/said something wrong? What was the right thing to do/say?" - "Why should she behave in such a way?" The entire session was recorded and subsequently transcribed. In general the session was 30 to 40 minutes long, younger children were allowed a few minutes of rest between questions. The interviewing took place in a relaxed atmosphere. The children obviously enjoyed the films and the interviews and some of them even asked for a continuation.

SCORING PROCEDURE

The answers of the children were scored in the following way:
A score of 0 was given if the subject did not understand - neither spontaneously nor with the help of E. - the situation represented in the filmscene.
A score of 1 was given if the child gave a correct description of the situation but did not recognize the non-compliant rule behaviour.
A score of 2 was given if the child detected the inappropriate behaviour and could give an example for the appropriate behaviour

but could not give an adequate explanation for the communication failure or was not able to explain it at all. Children were also given a score of 2 who in their explanation referred to other aspects of the situation but not to a communicative rule (examples see below).

A score of 3 were given if children recognized the inappropriate behaviour and referred in their explanation to a communication rule. In the explanation of certain rule-violations the child can either refer to the adequacy of the message or to the need of the listener and the effect of this message on the listener. All listener-related explanations are written in parenthesis, marked with "li".

The reliability of the scoring categories was assessed by having two persons score independently all the 26 protocols. In about 10 % of the scores discrepancies in judging resulted which were resolved by discussion between the two raters.

RESULTS

The number of the rules described below refers to the order of its occurrence in the film scenes. In presenting the results of this study, the rules are described in the order of their difficulty, beginning with the rules resp. rule violations that were most easily discovered by the children of this sample. Since this is only a preliminary and exploratory study based on a limited sample, no statistical treatment of the data was undertaken.

Film 1 was presented to the Ss in order to make safe that all had understood the instructions. The results were not considered for further computation.

Film scene 1: Katja sits at a table eating supper. The doorbell rings and she gets up to open the door. Katja: "Hello, Michi, good day ["Guten Tag"], come in". Michi says: "Hello, goodbye", enters and takes a seat.

All children detected that Michi should have said: Hello, good day ("Guten Tag"), thus indicating a knowledge of the greeting ritual. Seven children were not able to give an explanation. Ten children answered that one should say hello or good day if one enters a room, thus referring to the situation. The others referred to the conventional aspect ("One does it like this". - "One need not do it, but one does it out of politeness").

Rule (10): Be as informative as necessary. If one's statement is relevant to the behaviour of another, one should be as explicit as necessary.

Film scene 10: The two girls are sitting at the table. Katja: "Do you want to see my new Mickey Mouse book?". Michi: "Yes". Katja goes and fetches the book: "Here it is". Michi: "What shall I do with it?" Katja: "But you wanted to see it!" Michi: "But not now!"

Results of rule (10)

age	score 0	1	2	3
5			1	5
6			1	6 (4_{li})
7				6 (6_{li})
8			1	6 (6_{li})

All children recognized the inappropriate behaviour. In explaining the communicative fault, 7 children referred to the fact that the statement was not congruous with the intention of the speaker (Sa, 6 years old: "One cannot do the contrary of what one says"). The 16 other children who gave an adequate explanation took into consideration the role of the listener ("Then she knows it [that Michi does not want to see it now] and must not go in vain to fetch the book"). In their explanation the older children stressed the role of the other, a communication skill that also appears in the other tasks.

Rule (5): Two speakers should not speak at the same time.

Film scene 5: The two girls sit at a table and begin to utter a whole sentence at the same time. They stare at each other, wait a few seconds and again start speaking at the same time. They end up, staring at each other.

Results of rule (5)

age	score 0	1	2	3
5			2	4
6	1			5
7				6
8				7

The "basic rule of conversation: one party at a time" (Schegloff 1968, 40) is understood by all but 3 children in our sample who did not find out what was wrong in this situation. All the others could give an adequate explanation: The girls should speak one after another so that they can understand one another.

Rule (9): If someone utters his wish not to do something the listener should not force him to do it.

Film scene 9: The two girls are sitting at the table having supper. They have already eaten all the sandwiches except one. Katja: "Take this cheese-sandwich". Michi: "No, I don't like cheese". Katja: "Take this bread". She stuffs it into Michi's mouth. Michi looks disgusted.

Results of rule (9)

age	score 0	1	2	3
5			1	5
6			4	3
7			3	3
8			1	6

This film scene was created in order to assess to what degree younger children take the will of the other into consideration. All children detected what was wrong in this situation and that Katja was not allowed to stuff the bread into Michi's mouth. Seventeen children gave an explanation indicating that Michi's will should have been respected. Five children (with score 2) gave explanations which revealed a moral realism in the sense of Piaget: they focussed on external aspects of the situation and did not take into consideration the intentional aspect: "Katja is not allowed to put bread into Michi's mouth because Michi cannot swallow so quickly, because she can get sick or something can go down the wrong way". Four children argued that Michi need not eat cheese if she does not like it.

Rule (7): If one wants the listener to understand the utterance, then one should speak clearly (and not with a full mouth).

Film scene 7: The 2 girls are sitting at the table having supper. Some books("Buch") and a dish-cloth ("Tuch") are lying on the table. [In German "Buch" and "Tuch" are rhyme words.] Katja spills her milk and says with a full mouth: "Give me the (...uch = dish-cloth)". Michi hands her a book. Katja: "No. The (...uch)". Michi: "O, you mean the other book". - Katja swallows and says: "I mean the dish-cloth". - Michi: "Why didn't you say so from the beginning?" - Katja: "But I did!"

Results of rule (7)

age	score 0	1	2	3
5		3	1	2 (2_{li})
6	1		2	4 (4_{li})
7				6 (5_{li})
8			1	6 (5_{li})

All children but one understood the scene. Three 5 year olds could not detect anything wrong or funny. Sixteen Ss could explain the rule violation (Michi could not understand because Katja spoke with a full mouth). Three children (with score 2) gave inadequate explanations like "You should not speak with a full mouth because something can go down the wrong way" or: "because it does not look appetizing. Perhaps the whole crumb will fall out".

Rule (4): Be unambiguous. If one says yes, one should not contradict the utterance by shaking one's head to indicate no.

Film scene 4: Michi: "Have you already done your homework?" - Katja: "Yes" (but shakes her head to indicate no).

Results of rule (4)

age	score 0	1	2	3
5			6	
6			3	4_{li}
7				6_{li}
8			2	5_{li}

Some younger children needed help in grasping this situation because they had not paid attention to the gesture. But then all children recognized this contradiction and 15 were able to explain the rule, all referring to the listener. One boy, 7 years old, interpreted this contradiction as a symbol in itself: "One can think that Katja has not yet finished her homework, that she is in the middle of it".

Rule (3): Be unequivocal. If one answers a question, the statement should not contradict the ongoing action.

Film scene 3: The two girls sitting at a table. On the table are some sandwiches and a bottle. Katja: "Do you want to eat something with me?" Michi: "Thank you. I am not hungry" (she graps a sandwich and eats it).

Results of rule (3)

age	score 0	1	2	3	
5			4	2	
6			4	3	(1_{li})
7			1	5	(2_{li})
8			2	5	

All children detected the contradiction between the statement and the action but only 15 were able to give an adequate explanation. Three children (with score 2) centered about the statement and argued: "If Michi is not hungry, she should not eat: "One does not eat if one is not hungry". Twelve children answered that Michi should have said what she did, 3 children considered the effect of this answer on the listener.

Rule (12): If one utters a demand ticket and it is answered, one must make a statement that makes the reason for the demand ticket evident (Shimanoff 1980, 49, see also Nofsinger 1975).

Film scene 12: Katja: "Listen". Michi: "Yes, what?" Katja: (silence). Katja: "You know what?" Michi: "Yes, what's the matter?" Katja: (silence). Michi: "Are you crazy?"

Results of rule (12)

age	score 0	1	2	3	
5	1	3		2	
6		1	2	4	(2_{li})
7		1		5	(5_{li})
8		1	1	5	(4_{li})

Seven children did not understand the situation, 3 recognized the rule violation but were not able to explain it. Five children explained that Katja by making a summons incurs the obligation to talk again. Eleven children referred to the listener whose attention is aroused and then not satisfied. Here again more older children took into consideration the role of the listener.

Rule (2): If a speaker refers to the previous statement of a listener, his statement should not contradict the previous statement.

Film scene 2: Katja: "How are you, Michi?" Michi: "O, I feel bad, and you?" - Katja: "Thanks, I also feel fine."

Results of rule (2)

age	score 0	1	2	3
5		3	2	1
6	1	1	4	1
7		1	3	2
8		1		6

6 children (with score 1) understood that the expression "I also feel fine" was wrong. They argued that Katja should say "Thanks, I also feel bad." They obviously centered on the syntactic form of the statement and could not simultaneously consider the fact that Katja felt fine while the other felt bad. Two children argued at first, Michi should have said that she felt fine because that would conform to Katja's statement that she also felt fine. Nineteen children detected the incongruity of the statement and the actual circumstances but only 10 were able - some only with great difficulty - to give an explanation. All children who indicated in some way that the word "also" referred to something equal and therefore was not adequate because the two girls felt different were given a score of 3.

Rule (13): If someone asks for an information, one should give a clear, precise and coherent report.

Film scene 13: Katja: "The film yesterday was super, wasn't it?" - Michi: "What film?" - Katja: "The red feather." - Michi: "I haven't seen it. Tell it to me, please." - Katja gives a report with many pronouns and demonstrative adjectives which do not clearly indicate to what they are referring. The report can't be understood. - Michi: "Uuh?"

Results of rule (13)

age	score 0	1	2	3
5	5	1		
6	1	5	1	
7		1	1	4 (4_{li})
8		1		6 (4_{li})

Six children (with score 0) did not understand the situation and that Michi was unable to grasp the uncoherent report of Katja. Interestingly, they all said that they themselves had understood the report of Katja. These results are in agreement with findings by Piaget on verbal communication (1926). In Piaget's experiment a child had to retell a story and to explain a mechanical object to another child. The

younger speakers (6 and 7 years old) used verbalizations which were alike to Katja's report (undefined pronouns and demonstrative adjectives, omissions of relevant parts). Even under these circumstances the same year old listeners nearly always felt quite confident that they had understood what the speaker said. Piaget explains this fact by the concept of distorted assimilation: the listener is unable because of his egocentrism to make a critical evaluation of the message itself and assimilates the statements to his own schemes, elaborates on them and feels confident that he has understood. Nearly all of our 5 year old children showed this behaviour. Eight children of our study (with score 1) said that they didn't find anything funny about this film because they did not understand what Katja had said, but they could not say why. Most of them, however, thought that Michi understood the report. Si, 6 year old girl said: "Katja made a fine report. But I could not understand. I am so forgetful." Jo, 8 year old boy, after being asked if Katja had told the story well or badly, answered: "Well. That I cannot say that she told the story badly, that it was badly told." He himself, however, had not understood the film: "Perhaps I am too young for that, perhaps it is only for 10- or 12 year olds"). Twelve children recognized that the story of Katja was not well told but two of them (with score 2) had difficulties to explain why. Ke, 6 year old child, said: "Katja spoke so unintelligibly ("undeutlich"), she should speak as we do, we don't speak unintelligibly." - Asked to give an example of how "we speak" she told a film she had seen one day: "I saw a film where a man was and he was on a ship. And they (!) went away, and the woman (!) saw the man, and she helped him, the man, to lay this, the planks." Ke.'s report itself

is a nice example for context-bound speech. While she recognized - herself in the role of the listener - that Katja's report was not understandable, she was not able to take the role of her listener and to judge that her report also was unintelligible. Another boy, 7 years old, said: "Katja didn't speak clearly, so Michi didn't understand it." E asked if he himself had understood the film and he said: "Yes, but I knew the film."

Ten children, mainly the 7 and 8 year olds, could clearly designate the communicative fault and give the explanation for it. Eight children referred in their explanation to the need of the listener. Si., 8 year old boy, said: "Katja told the story very badly, and as if Michi had seen the film. Now perhaps Michi is confused as to whether she has seen it or not. Now she might think: 'Have I seen the film or not?' That's what she could think now." -

Rule (11): If one has asked for an explanation, one is obliged to listen to it.

Film scene 11: Michi asks Katja to explain her the game Memory they are going to play together. But she does not listen and makes a mistake in the game when they start playing.

Results of rule 11

age	score 0	1	2	3
5		4	2	
6	1	1	5	
7			2	$4(2_{1i})$
8			2	$5(1_{1i})$

Only 6 of the younger children did not understand the film. The other 20 recognized that Michi made a fault in not listening to the explanations. But only nine of them could give an adequate reason. Nine children (with score of 2) answered Michi should listen because she did not know the game and then she would not make a mistake or then they would not end up in a quarrel. The structure of this argument resembles to what Piaget has called "moral realism":

it focusses on the external or material aspect of the siutation and fails to take into account the intentional or subjective aspect (Michi wants to have it explained, Katja wants to explain it). Three children referred in their explanation to the role of the other (Michi has an obligation towards Katja because she has asked her for an explanation), six children referred to the fact that Michi since she has uttered the wish has an obligation to listen. Since this film scene contains a rather lengthy story, in a replication of this study this rule should be tested in a more simple fashion.

Rule (8): The listener should try to understand the illocutive aspect of an utterance (should consider the utterance with reference to its context of use).

Film scene (8): Katja drinks all her milk, offers her empty glass to Michi and says: "Can you reach the bottle?" Michi stretches out her arm, touches the bottle and says: "Yes", but does not react further. Katja looks angry.

Results of rule (8)

age	score 0	1	2	3
5	3	2		1
6	3		3	1
7			5	1
8			3	4

A score of 0 was given to those children who paid only attention to the propositional aspect of the statement, and argued that Michi could not understand Katja's demand. They all blamed the speaker that she did not make herself sufficiently clear. Two children said, Katja should have added "please" to her utterance. The speaker-blamers all understood the intention of the speaker but were not able to conclude that the listener (Michi) also should have been able to understand it, thus indicating a lack of ability to consider two other persons' point of view simultaneously. The 2 children with a score of 1 grasped the situation but not the point. They said Michi would hand the bottle to Katja a little later. A score

of 2 was given to those children who recognized that Katja wanted to drink and that Michi should have passed her the bottle, but were unable to give an explanation. Seven children were given a score of 3 because they referred in their explanation to the fact that Michi should have been able to conclude from the utterance together with the situation (Katja's glass being empty, Katja holding her glass to Michi) that she wanted to have something to drink. Interestingly, no child said that Michi wanted to fool Katja and voluntarily reacted only to the literal aspect of the demand. One 8 year old boy argued: "Michi should have been able to understand Katja's utterance. One does not say 'Can you reach the bottle' for nothing", thus indicating to the fact that it is possible to view rule (8) as an interpretative corollary to Nofsinger's rule "Do not say that which is pointless or spurious" (Nofsinger, 1976, 177).

Rule (6): One should not interrupt another speaker and make the own comment before one knows the topic of the talk.

Film scene 6: Katja: "Yesterday I saw television. It really was super." Michi (interrupting her): "Yes, really exiting!" - Katja: "In Sesame Street..." - Michi: (interrupting again) "What they did there..."- Katja: "They really struggled with each other, Ernie and Bert." Michi:"... the Bee Maya". Katja: "Why Bee Maya?" - Michi: "Why Ernie and Bert?"

Results for Rule (6)

	score			
age	0	1	2	3
5	5	1		
6	1	6		
7		3		3
8	1	2	2	2

This scene could be taken as an example of a collective monologue (Piaget), an indication of egocentric speech where both participants don't take into consideration the position of the other and have the illusion of speaking about the same topic. Seven children of our study, mainly the 5 year olds, did not understand the story. They thought both children were speaking about the same film. Twelve children recognized that Katja and Michi spoke about different topics but could

not give the reason of it. Only 5 children explained that one should not interrupt a speaker before the topic is known.

Discussion

The results of this study clearly show an increase of scores with age. In order to distinguish different stages of rule knowledge a categorization was used proposed by Shimanoff (1980):

1) rule-ignorant behaviour (score 0 and 1). The child does not detect the rule-noncompliant behaviour.
2) tacit-knowledge of a rule (score 2). The child is able to distinguish appropriate and inappropriate behaviour.
3) conscious knowledge of the rule (score 3). The child is able to recognize the communication failure and to verbalize the corresponding communication rule.

Table 1 gives an overview about the different stages of rule knowledge in our sample, indicating to a clear age-dependency.

Table 1: Mean number of tasks indicating to different stages of rule knowledge

age	rule-ignorant behaviour	tacit knowledge of a rule	conscious knowledge
5	5.5	2.8	3.7
6	3	4.4	4.6
7	1	2.5	8.5
8	0.6	2.4	9

The 5 year olds and to a lesser degree the 6 year old children of our study had difficulties to understand and/or to detect inappropriate behaviour in film 13 (the unintelligible report about the "Red feather"), film 6 (interrupting without knowing the topic),

film 12 (summons - answer - no further comment) and film 8 (Can you reach the bottle?). The younger children also had difficulties with film 2 (I also feel fine).

In interpreting these results, two cognitive developmental concepts will be considered: lack of cognitive prerequisites to evaluate a message, and the ability to consider the role of the other and to take into consideration two perspectives simultaneously.

The results indicate that the Ss. - even those at a preoperational level as our 5 year olds supposingly are - have no difficulties in evaluating a verbal message if it refers directly to an ongoing concrete and simple action. All children recognized the inconsistency between statement and behaviour in film 4 (yes - no) and film 3 (not hungry - eating) and between the stated intention to act and the behaviour in film 10 (I want to see it - but not now). Robinson/Robinson observed in their earlier experiments (1976) that younger children tended to blame the listener for a communication failure which was caused by the inadequate message of the speaker. The authors concluded that the listener-blamers had no understanding that messages could be inadequate. In a later study (1977), however, they revised their assumption after having shown that the listener-blamers were able to detect the message as inadequate. The authors now suggest that the difficulties of the younger children lie in judging messages. The findings of the study reported here are in agreement with this hypothesis. If there is a clear relation of the message to an ongoing concrete and very simple action, young children are able to notice discrepancies. They have more problems, however, if these discrepancies are more subtle and if the behaviour

of the speaker deviates from his previously stated intentions embedded in a speech act. The verbal messages in film 11 and 12 imply a contract to behave in a certain way: the demand for an explication obliges to listen; after his summons has been answered the speaker is obligated for further interaction.

If the message clearly relates to a verbal plane only, as in film 6 and 10, then younger children have problems to evaluate it because they lack the cognitive prerequisites. In film 10, "Red feather" nearly all 5 year olds despite of the definite incomprehensibility of Katja's report felt confident that they had understood the story. One 6 year old boy even claimed he knew the story. Markman (1977) in her study on children's awareness of their comprehension failure also observed that first graders are insensitive to their own comprehension failure, and attributed this to a lack of constructive processing. Children in her study realized their nonunderstanding better if they enacted the information or observed a demonstration of the action embedded in the information. It is suggested that the children in the study reported here did not detect the message inadequacy because they assimilate what they hear to their own schemes and are not able to discriminate between the report and their own point of view.

The comprehension of language is related to particular stages of operational thinking. Children at the preoperational level of intelligence lack cognitive operations, like general and hierachical classification, seriation, class-inclusion or causality that are some of the prerequisites for processing a message referring to the representational level.

The poorer results of the 5 and 6 year old

subjects may further be attributed to a lack of perspective taking ability. In recent literature it has been shown that unidimensional models of role taking ability are inadequate and multi-level models have been proposed, which differentiate between the number of perspectives taken simultaneously into consideration and in terms of recursive structure, i.e. the number of embedded perspectives achieved (Keller 1976, Selman/Jaquette 1977, Kurdeck 1977, Oppenheimer 1977, Landry/Lyons-Ruth 1980, Valtin 1981). The data of this study (see appendix) indicate that it is possible to identify 3 levels of increasing difficulty: level 1 (one perspective) - thinking about another person's thought; level 1 (two perspectives) - simultaneous awareness of two persons' point of views, and level 2 - thinking about another person's thinking of another person's thinking. As shown in table 2 (appendix) all subjects passed level 1 (one perspective) tasks, while only one six year old girl, 4 seven year olds and all 8 year olds gave level 2 responses. Children of age 5 and 6 had difficulties to consider simultaneously two different perspectives. This is for instance evident in the answers to film 8 where both girls may be blamed for doing something wrong (Katja's utterance: "Can you reach the bottle?" may be blamed for being unclear, and Michi may be blamed for not trying to understand Katja). Five children (three 5 year olds and one 6 year old) blamed the speaker, five 6 year olds blamed the listener and only the older children (all 7 and all 8 year olds, and one 5 year old) blamed both speaker and listener for their behaviour, thus indicating a simultaneous awareness of two different persons' point of view.

The finding of this study that mainly the older children - after having recognized the inadequate message - considered its effect on the listener, can also be attributed to higher levels of perspective taking ability. Pilot studies with adults who were interviewed after having seen our films, clearly indicate that adults in their explanation of rule-violations tend to refer to the role of the listener. The data of this study allow the following tentative conclusion: In evaluating verbal messages in a communication situation where children are observers, they first judge the adequacy of the message and its congruity between what the speaker says and what he does. In a second step and at a later developmental stage the children consider the need of the listener and the effect of the message to him. That means that the children at first act themselves as listeners to the message,and we know that young children are not very effective listeners (Cosgrove/Patterson 1977). Only if the children have achieved level 1 (two perspectives) ability they can simultaneously take the role of the other listener. This hypothesis needs additional support.

The results of this exploratory study indicate that the employed method seems to be useful for investigating childrens' awareness and knowledge of communication rules. In further studies, already designed by the senior author, more maxims of the cooperative principle of Grice will be studied (namely: be relevant, be polite) and their relationship with other cognitive measures assessed. From the basis of this exploratory study, one may conclude however that the young child still needs a long development in order to achieve those interactional abilities of a tactful sensitive inter-

actant as Goffman has described them (Goffman, 1975, 166 116-117):

"These two tendencies, that of the speaker to scale down his expressions and that of the listeners to scale up their interests, each in the light of the other's capacities and demands, form the bridge that people build to one another, allowing them to meet for a moment of talk in a communion of reciprocally sustained involvement. It is this spark, not the more obvious kinds of love, that lights up the world."

APPENDIX:Tentative approach to identify different and hierarchically related levels of perspective-taking ability.

It was hypothesized that it is possible to identify 3 different levels of perspective taking ability: level 1 (one perspective) - thinking about another person's thinking; level 1 (two perspectives) - taking into consideration the thinking of 2 persons simultaneously; level 2 - thinking about another person's thinking about another person's thinking. Five of the 13 films were chosen which could give an indication of these different levels. The children were scored pass - fail in the following tasks:
level 1 (one perspective); the identification of a person's perspective in film 3,9 and 10;

level 1(two perspectives): the identification of each girl's perspective in film 2 (one felt fine, the other felt bad), film 7 (Katja wants to have a dish-cloth,Michi does not understand because Katja speaks with a full mouth.) and in film 8 (Katja wants to drink, Michi should have reached her the bottle). Children who referred to Michi's thinking about Katja's thought were given a pass score for level 2.

level 2: answers of the children that referred to the listeners thinking of the speakers thinking. These answers only occured for film 8 and 12. In interpreting the results represented in table 2 it should be kept in mind that the answers to film 8 can refer to two different levels of perspective taking and thus are not independent.

Table 2

The data again show a clear age-dependency of the scores and support the assumption of a hierarchical order of different perspective taking abilities. All subjects passed the 3

level 1 (one perspective) tasks. Of the 11 children who passed all level 1 (two perspectives) tasks, 10 also gave level 2 answers. Only 3 children (no. 13,14 and 20) who did not pass all 3 level 1 (two perspectives) tasks gave a level 2 response.

Table 2: Pass-fail scores of children in tasks indicating to different levels of perspective taking ability.

child	age	Level I (one perspective) 3	9	10	Level I (two perspectives) 7	2	8	Level II 12	8
1) Ka	5	+	+	+	-	-	-	-	-
2) Aj	5	+	+	+	-	-	+	-	-
3) Ma	5	+	+	+	-	+	+	-	-
4) M	5	+	+	+	+	-	-	-	-
5) An	5	+	+	+	+	+	-	-	-
6) El	5	+	+	+	+	+	-	-	-
7) To	6	+	+	+	-	+	-	-	-
8) Si	6	+	+	+	+	-	-	-	-
9) Se	6	+	+	+	+	-	-	-	-
10) K	6	+	+	+	+	+	-	-	-
11) Sa	6	+	+	+	+	+	-	-	-
12) Ta	6	+	+	+	+	+	-	-	-
13) Mei	6	+	+	+	+	+	-	+	+
14) Fl	7	+	+	+	+	-	+	+	-
15) Ro	7	+	+	+	+	+	+	-	-
16) Fr	7	+	+	+	+	+	+	-	-
17) Vi	7	+	+	+	+	+	+	+	-
18) So	7	+	+	+	+	+	+	+	-
19) Mn	7	+	+	+	+	+	+	+	-
20) Gi	8	+	+	+	+	-	+	-	+
21) Sv	8	+	+	+	+	+	+	+	-
22) A	8	+	+	+	+	+	+	+	-
23) Jo	8	+	+	+	+	+	+	-	+
24) Su	8	+	+	+	+	+	+	+	-
25) Si	8	+	+	+	+	+	+	-	+
26) An	8	+	+	+	+	+	+	+	+

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